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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/517,126

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Gerd Schmaucks

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LUCAS & MERCANTI, LLP
475 PARK AVENUE SOUTH
15TH FLOOR
NEW YORK, NY 10016

EXAMINER

LACLAIR, DARCY D

ART UNIT

PAPER NUMBER

4171

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/517,126	Applicant(s) SCHMAUCKS, GERD	
	Examiner Darcy D. LaClair	Art Unit 4171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/1/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
2. The following title is suggested: Elastomeric Resin Compositions with High Filler Content of Microsilica, or a similarly descriptive title detailing the aspects of the invention presented.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 7 and 8 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claims 1-8 are rejected for the use of the term “high filler content.” It is unclear whether this indicates that the resin is highly filled prior to the addition of significant quantities of microsilica, or if the resin is highly filled due to the addition of microsilica.

8. Claims 7 and 8 provide for the use of microsilica to improve processability and increase flame retardance, respectively, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Double Patenting

9. Claims 1-6 and 8 of this application conflict with claims 1-5 of Application No. 11/718590. In the specification of the instant application, applicant lists thermoplastic elastomers as being within the scope of the invention. (paragraph 16) The range of microsilica required for the conflicting application is in the range 5-60%, which is a subset of the 1 – 400% range of the instant application, and the inherent properties and function of microsilica would remain the same. Claims 1 - 6 of the instant application require a compound with a high filler content and additionally microsilica, making the glass fiber of the conflicting application a species within the genus outlined by the instant application.

10. Claim 4 of the conflicting application further comprises a conventional flame retardant additive, which generically encompasses the aluminum trihydrate and/or magnesium hydroxide taught in claim 8 of the instant application.

11. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

Claim Rejections - 35 USC § 102

12. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Columbian Carbon Company (GB 1135464 A).

13. With regard to claims 1-3, applicant claims an elastomeric compound comprising filler and 1-400% micro silica, further narrowed to 5-300% and 10-150%, by weight of microsilica. Columbian teaches an amorphous silicone dioxide (5-30 milimicron silica, corresponding to applicants microsilica) for incorporation in rubber, (pg 1 line 67-70) for the purpose of improving the properties of rubber compounds (pg 2 line 129-130, pg 6 line 9-21). Columbian provides an example with 100 parts by weight of natural rubber, 55 parts by weight of silica, and additionally a total of 14.5% by weight zinc oxide, sulfur, and other additives, which is clearly within applicant's ranges for microsilica and is

sufficiently analogous to applicants lower limit (15%) for highly filled resins (paragraph 3 of the instant application).

14. With regard to claims 4-6, which detail a method of mixing the amounts described above, Columbian teaches that the silica may be readily incorporated into rubber by dry milling. (p 3 line 0-4)

15. With regard to claim 7, which requires the use of microsilica as a modifier to improve processability, Columbian demonstrates that their silica imparts improved properties, such as improved tensile strength and shortened cure time (pg 2 line 129-130), improved the mixing time for combining the silica with the resin, and imparted generally improved properties. (p 5 line 10-25, p 6 line 0-21) In addition, improved processability due to the addition would be an inherent property of the microsilica, so that effect would necessarily be realized.

16. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Danielssen et al. (WO00/27911 also see US6,809,144)

17. With regard to claims 1-3, Danielssen teaches a thermoplastic resin composition containing between 3% and 400% by weight of filler, with the filler comprising talc and microsilica. Danielssen indicates that the use of "thermoplastic resin" encompasses blends of thermoplastic resins with other materials such as an elastomer, thermoplastic rubbers, and thermoplastic elastomers. (col 1 line 35-45) The ratio between talc and microsilica can be 15:1 to 1:15, which substantially covers applicant's claimed ranges for both microsilica and additional filler component. (col 2 line 8-16)

18. With regard to claims 4-6, Danielssen relates a method for the production of thermoplastic resin compositions, which is characterized by adding the filler to the resin in the specified weight ratios. (col 2 line 19-28)

19. With regard to claim 7, Danielssen discloses that the use of microsilica in the resins improve the tensile modulus and impact strength. (col 2 line 42-46, fig 1 and 2) This would improve the processability by providing a higher quality resin, and therefore a higher quality product via the processing. In addition, improved processability due to the addition would be an inherent property of the microsilica, so that effect would necessarily be realized.

20. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Underwood et al. (US 4,301,060)

21. With regard to claims 1-3, Underwood teaches a solid resin composition of a thermoplastic resin and particulate amorphous silica as a filler, in loadings as high as 250 parts per hundred parts of resin. (abs) Underwood discloses that "thermoplastic resin" includes blends of thermoplastics with elastomers and the thermoplastic rubbers. (col 2 line 36-55) Underwood further indicates that one of ordinary skill in the art would understand that other fillers could be added as well in order to achieve the desired characteristics, meeting applicant's requirement for fillers and "additionally microsilica". (col 13 line 38-42)

22. With regard to claims 4-6, Underwood teaches that the amorphous silica in the compositions taught could be included by being thoroughly mixed in with the resin. (col 5 line 24-30)

23. With regard to claim 7, Underwood teaches that the presence of amorphous silica can improve the rheological properties with a lower heat input, which would significantly enhance the processability. (col 3 line 7-11) In addition, Underwood explains that the filler is of importance as it can affect properties such as the processing characteristics, (col 1 line 64) and indicates that better processability was experienced when using the amorphous silica. (col 5 line 45-48)

Claim Rejections - 35 USC § 103

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

25. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Underwood (US 4,301,060) in view of Wypych.

26. With regard to claim 8, Underwood teaches that the nature of the filler is of importance because it affects properties such as fire resistance, (col 1 line 56-64) and that the presence of amorphous silica results in improved properties such as fire resistance (col 3 line 10). It is set forth that the skilled processer would be able to use

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the amorphous silica and resin of the invention with one or more fillers in order to achieve a required balance of characteristics. (col 13 line 38-42)

27. Although Underwood clearly recognizes the benefits of fire resistance in a finished product, and teaches that fillers may be added to achieve desired products, he is silent with regard to the type of additional flame retarding agents which might be added as fillers.

28. The Handbook of Fillers (Wypych) teaches both aluminum trihydrate (or aluminum trihydroxide) and magnesium hydroxide as flame retarding fillers:

Names: aluminum trihydroxide, aluminum hydroxide, hydrated alumina	CAS #: 21645-51-2
Chemical formula: $\text{Al}(\text{OH})_3$ or $\text{Al}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$	Functionality: OH, methacryl, vinyl, stearic acid, viscosity reducer (Alcan grades S)
Chemical composition: $\text{Al}(\text{OH})_3$ - 94-97%, Fe_2O_3 - 0.01%, SiO_2 - 0.01-0.03%, Na_2O - 0.2-0.5%	

trihydroxide. Two properties made aluminum trihydroxide very popular: its flame retarding abilities and its low absorption of UV.

Magnesium hydroxide is an emerging filler for fire retardant applications. In this area, it competes with aluminum trihydroxide, antimony oxide, and other fillers based on zinc. Magnesium hydroxide has a different decomposition temperature from aluminum trihydroxide, it is more suitable for polymers with higher decomposition temperature.

29. Given that Underwood has taught, generically, the addition of fillers, and clearly recognizes the benefit of a composition with improved flame retardance, it would have been obvious to one of ordinary skill in the art to consider known flame retardants, as provided by Wypych, for inclusion in the polymer composition taught by Underwood so as to provide desirable flame retardant properties.

Conclusion

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hawkins et al. (US 5,707,734), Pyle et al. (US 6,485,882).

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darcy D. LaClair whose telephone number is (571)270-5462. The examiner can normally be reached on Monday-Thursday 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 4174

Darcy D. LaClair
Examiner
Art Unit 4171

/DDL/